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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,928	04/11/2001	Alex Horng	HORN3007/EM/6685	8191

7590 06/05/2002
Bacon & Thomas
625 Slaters Lane - 4th Floor
Alexandria, VA 22314

EXAMINER

NGUYEN, TRAN N

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,928

Applicant(s)

HORNG ET AL.

Examiner

Tran N. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-113 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-4, 6-7 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wang** (US 5097162) in view of Applicant's admitted prior-art figure 5 (hereafter **APA fig 5**) and **Furuta** (JP 403239151).

Wang discloses a motor having axial winding and radial air-gap comprising:

- an upper and lower housings (132, 138) which can be made of magnetic material;
- an insulating coil seat (122) with stator winding (118) and a central hole;
- an upper and lower magnetic steel plates (110 A, 110B) with respective poles (114A-114B) position, each of the steel plates provided with side wall extending toward and abut to one another;
- a rotor with permanent magnet (124) located in the central hole.

Wang substantially discloses the claimed invention, except for the limitations of the following:

- (a) the poles of the magnetic steel plates are arranged in a staggered manner with each others;
- (b) the motor having an actuating circuit with printed circuit board (PCB) located between the magnetic steel plate and the lower housing.

Regarding limitations of subsection 1(a), Furuta, however, teaches a motor having a stator comprising: axial winding and two pole plates, each of which has a plurality of poles, wherein the poles respectively arranged in a staggered manner with each others. This would provide

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enhance magnetic flux between the rotor and the stator. A stator with axial winding coil seat and two upper and lower pole plates having respectively a plurality of poles, wherein the poles respectively arranged in a staggered manner with each others, is well known in the art.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Wang's stator by configuring the steel plates with a plurality of poles, wherein the poles respectively arranged in a staggered manner with each others. Doing so would provide enhance magnetic flux between the rotor and the stator. Furthermore, Wang discloses the magnetic steel plates are made of cold-rolled steel material instead of silicon steel as recited. However, the Examiner takes Official Notice that silicon steel is a well-known material for fabricating magnetic core or pole plates (see cited refs as support evidence for this statement) because silicon steel has superior magnetic characteristics. Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select silicon steel, as in the claimed invention, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding limitations of subsection 1(b), APA fig 5 teaches the motor having an actuating circuit with printed circuit board (PCB) located between the magnetic steel plate and the lower housing. Those skilled in the art a PCB with an actuating circuit is an essential part of the motor.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Wang's motor by embodying a PCB with an actuating circuit, as taught by APA fig 5, because PCB w/ actuating circuit is an essential part of the motor.

2. **Claims 5 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the **Wang**, **APA fig 5** and **Furuta** refs, as applied in the rejection against the base claim, and further in view of **Miyazawa et al** (US 5952760).

The combination of the **Wang , APA fig 5 and Furuta refs** discloses the claimed invention, except for the added limitations of the positioning posts and the positioning holes, as in claims 5 and 13.

Miyazawa, however, teaches a brushless motor having a coil seat with posts (12c) and pole plates with holes (16c) and a PCB with holes (32) (figs 2-9 and 32) for facilitating the positioning process to securely assembly the motor's elements in their places.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the motor by providing the coil seat with posts and pole plate with holes and PCB with holes. Doing so would facilitate the positioning process to securely assembly the motor's elements in their places.

3. **Claims 10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the **Wang , APA fig 5 and Furuta refs**, as applied in the rejection against the base claim, and further in view of **Daikoku et al** (US 6181046).

The combination of the **Wang , APA fig 5 and Furuta refs** discloses the claimed invention, except for the added limitations of the PCB having an insulating layer covers the PCB.

Daikoku, however, teaches a PCB (58) having insulating layer, particularly a insulating plate (66) covering the PCB (figs 27-28) to mechanically protect the PCB's components. Those skilled in the art would realize that the practice of covering a PCB and its electronics components by an insulating layer for sealing and protecting the components is a well-known practice in the art.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the motor by providing a PCB with an insulating layer to cover the PCB and its components, as taught by Daikoku. Doing so would provide a protective sealing means to mechanically shield the PCB and its component from any potential damage that would in turn affect the function of the drive circuit of the motor.

Regarding the PCB's locations, as respectively recited in claims 11-12, APA fig 5 teaches the motor having an actuating circuit with printed circuit board (PCB) located between the magnetic steel plate and the lower housing. Those skilled in the art would realize that locating the PCB between the steel plate and the upper housing is a reverse arrangement of the

APA fig 5's teaching. This requires only routine skills in the art to re-arranging disclosed element.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange the PCB so that the PCB is located between the steel plate and the upper housing or between the magnetic steel plate and the lower housing, which is a reversal arrange with respect to the previous arrangement. This is obvious because it has been held that rearranging parts of an invention involves only routine skill in the art (*In re Japikse*, 86 USPQ 70). One of ordinary skill in the art would have the necessary mechanical skill to make simple **reversals of positions of mechanical parts** without an express teaching in a reference (*In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

4. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the **Wang**, **APA fig 5** and **Furuta** refs, as applied in the rejection against the base claim, and further in view of **Suzuki** (US 5757108).

The combination of the **Wang**, **APA fig 5** and **Furuta** refs discloses the claimed invention, except for the added limitations of the lugs protruding outward from the steel plates.

Suzuki, however, teaches steel plates having steel plates with lugs (1a and 2a) for providing positioning and support thereof.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the motor's steel plate with lugs extending outwardly, as taught by Suzuki. Doing so would provide means for positioning and support thereof.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N Nguyen whose telephone number is (703) 308-1639. The examiner can normally be reached on M-F 6:00AM-2:30PM.

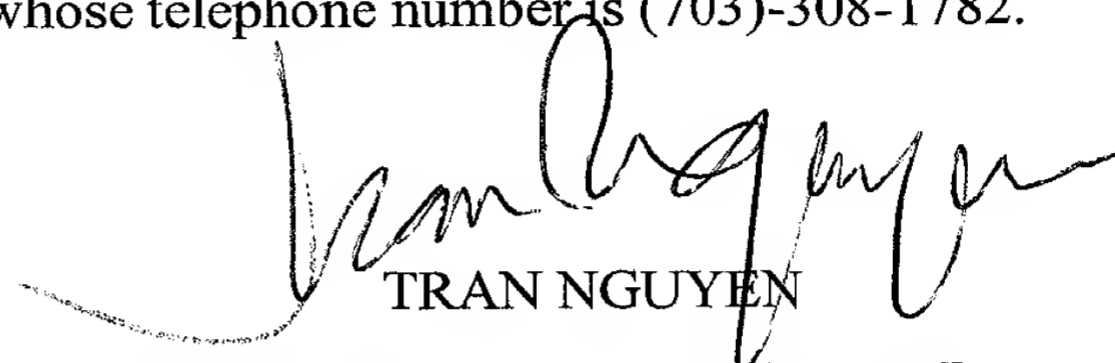
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703)-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)-395-3432 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-1782.



TRAN NGUYEN

PRIMARY PATENT EXAMINER

TC-2800